

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 April 2004 (01.04.2004)

PCT

(10) International Publication Number
WO 2004/026948 A3

(51) International Patent Classification⁷: **C08J 9/04**,
B32B 15/08, 5/18, 5/22, B29C 44/32

(21) International Application Number:
PCT/US2003/021434

(22) International Filing Date: 9 July 2003 (09.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/411,776 17 September 2002 (17.09.2002) US

(71) Applicant (for all designated States except US): **DOW GLOBAL TECHNOLOGIES INC.** [US/US]; Washington Street, 1790 Building, Midland, MI 48674 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HOUT, Penne, J.** [US/US]; 16214 Dew Drop Lane, Tampa, FL 33625 (US). **LONDRIGAN, Michael, E.** [US/US]; 3153 Landmark Drive, Unit 221, Clearwater, FL 33761 (US). **RODRIGUEZ, Trina, M.** [US/US]; 9506 West Cluster Avenue, Tampa, FL 33615 (US).

(74) Agent: **MORK, Steven, W.**; The Dow Chemical Company, Intellectual Property, P.O. Box 1967, Midland, MI 48641-1967 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
21 May 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FIRE RESISTANT POLYMERIC FOAM COMPOSITES

(57) Abstract: Polymeric foam composites (PFCs) containing a polyurethane or polyisocyanurate foam can pass both ceiling and wall portions of the United Building Code 26-3 Room Corner Burn Test and can meet requirements for Factory Mutual 4880 approval. Polymeric foam composites of the present invention have a front face with an exposed metal sheet. Polymeric foams in the PFCs contain at least 4 weight-percent halogen, at least 10 percent of which comes from a highly-halogenated compound, at least 0.25 weight-percent phosphorous, and a residual blowing agent composition that contains less than 50 weight-percent chlorofluorocarbons and hydrochlorofluorocarbons. The polymeric foam also contains flame-retarding fibers at an average concentration of at least one weight-percent, based on combined foam and fiber weight, within 0.125 inches (3.2 millimeters) of the foam's front surface.



WO 2004/026948 A3

INTERNATIONAL SEARCH REPORT

PCT/US 03/21434

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08J9/04 B32B15/08 B32B5/18 B32B5/22 B29C44/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08J B32B B29C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages.	Relevant to claim No.
A	US 4 028 158 A (HAGAN JOSEPH R ET AL) 7 June 1977 (1977-06-07) examples 1,2 claims	1-19
A	EP 0 832 735 A (WOLMAN GMBH DR) <u>1 April 1998 (1998-04-01)</u> page 2, lines 46,47 claims 1,5-12	1-19
A	GB 895 967 A (ICI LTD) 9 May 1962 (1962-05-09) claims	1-19

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

3 March 2004

Date of mailing of the international search report

23/03/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Oudot, R

INTERNATIONAL SEARCH REPORT

PCT/US 03/21434

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4028158	A	07-06-1977	AT 361718 B	25-03-1981
			AT 24977 A	15-08-1980
			CA 1088409 A1	28-10-1980
			DE 2700907 A1	21-07-1977
			ES 455136 A1	16-04-1978
			ES 466545 A1	01-10-1978
			FR 2338139 A1	12-08-1977
			GB 1536979 A	29-12-1978
			IT 1192168 B	31-03-1988
			JP 1367857 C	11-03-1987
			JP 52110791 A	17-09-1977
			JP 57058294 B	09-12-1982
			LU 76595 A1	24-06-1977
			NL 7700527 A ,B,	21-07-1977
			US 4386983 A	07-06-1983
EP 0832735	A	01-04-1998	DE 19639842 A1	02-04-1998
			DE 19652352 A1	18-06-1998
			EP 0832735 A2	01-04-1998
GB 895967	A	09-05-1962	NONE	